CIVIL QUALITY CONSULTANTS & ENGINEERS

(Buildings Geo-Tech & Highway Materials Testing Laboratory)
An ISO 9001: 2008 Certified Company

JAS-ANZ
ISO 9001:2000 CERTIFIED

Job No.: CQCE/BBMP/KRIDL/W.No.12/2016-17 Date : 05.04.2016

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Executive Engineer,** Dasarhalli Division, BBMP, Bangalore.

Agency : **Technical Manager (west),** KRIDL, Bangalore.

Name of Work : Asphalting of road from WIMAC Junction to Abbigere in Shettyhalli Ward No.12, BBMP, Bangalore.

Reference : EE/DD/WO/443/2012-13 Dated:08.03.2013

Date of Testing : 05.04.2016

Material Type : Wet Mix Macadam

Oven Dry.Wt 12868

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	441	441	3.4	96.6	95-100
22.4	4338	4779	37.1	62.9	60-80
11.2	2356	7135	55.4	44.6	40-60
4.75	2048	9183	71.4	28.6	25-40
2.36	1326	10509	81.7	18.3	15-30
0.600	1157	11666	90.7	9.3	8-22
0.075	872	12538	97.4	2.6	0-8

AE-12

Note:

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2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 90 days from the date of testing.

Ravi.N.K.
AE W.12

For CIVIL QUALITY CONSULTANTS & ENGINEERS

Authorised Signatory

Office & Laboratory : # 133, Bhuvaneshwarinagar, Dodda Basti Main Road, Bangalore - 560 056.
e-mail:civilqualityconsultants@gmail.com Ph: 080-23240644 / Mob: 8553518550

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Job No.: CQCE/BBMP/KRIDL/W.No.12/2016-17 Date : 05.04.2016

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Executive Engineer,** Dasarhalli Division, BBMP, Bangalore.

Agency : **Technical Manager (west),** KRIDL, Bangalore.

Name of Work : Asphalting of road from WIMAC Junction to Abbigere in Shettyhalli Ward No.12, BBMP, Bangalore.

Reference : EE/DD/WO/443/2012-13 Dated:08.03.2013

Date of Testing : 05.04.2016

Material Type : Wet Mix Macadam

Oven Dry.Wt 12757

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	451	451	3.5	96.5	95-100
22.4	4326	4777	37.4	62.6	60-80
11.2	2319	7096	55.6	44.4	40-60
4.75	2026	9122	71.5	28.5	25-40
2.36	1318	10440	81.8	18.2	15-30
0.600	1142	11582	90.8	9.2	8-22
0.075	845	12427	97.4	2.6	0-8

AE-12

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AE N-12

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Job No.: CQCE/BBMP/KRIDL/W.No.12/2016-17 Date: 11.04.2016

TEST REPORT

Client	:	**Executive Engineer,** Dasarhalli Division, BBMP, Bangalore.
Agency	:	**Technical Manager (west),** KRIDL, Bangalore.
Name of the work	:	Asphalting of road from WIMAC Junction to Abbigere in Shettyhalli Ward No.12, BBMP, Bangalore.
Reference	:	EE/DD/WO/443/2012-13 Dated:08.03.2013
Source of location	:	Hot mix Plant, Bangalore
Date of testing	:	: 11.04.2016

The results of the tests conducted on the bitumen sample using for Bituminous Macadam

Sl. No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	86	80 to 100
2	Softening point, ^{0}C	47	Min. 40
3	Ductility at 27^{0}C, cm	100 >	Min. 75
4	Flash Point, ^{0}C	320	Min. 220

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Job No.: CQCE/BBMP/KRIDL/W.No.12/2017-18 Date: 11.04.2016

Aggregate Gradation Test
IS : 2386 Part I

Client	Executive Engineer, Dasarhalli Division, BBMP, Bangalore.
Agency	Technical Manager (west), KRIDL, Bangalore.
Name of the work	Asphalting of road from WIMAC Junction to Abbigere in Shettyhalli Ward No.12, BBMP, Bangalore.
Reference	EE/DD/WO/443/2012-13 Dated:08.03.2013
Sample ID	Hotmix Plant, Bangalore.
Type of Mix	Bituminous Macadam
Date of Testing	11.04.2016

5250 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH specification
19	376	7.16	7.16	92.84	90-100	
13.2	1652	31.47	38.63	61.37	56-88	
4.75	1542	29.37	68.00	32.00	16-36	
2.36	1152	21.94	89.94	10.06	4-19	
0.3	175	3.33	93.28	6.72	2-10	
0.075	79	1.50	94.78	5.22	0-8	

Total Weight of Sample: 5050 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH specification
19	271	5.37	5.37	94.63	90-100	
13.2	1543	30.55	35.92	64.08	56-88	
4.75	1468	29.07	64.99	35.01	16-36	
2.36	873	17.29	82.28	17.72	4-19	
0.3	429	8.50	90.77	9.23	2-10	
0.075	86	1.70	92.48	7.52	0-8	

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Ravi N.K. AEW-12

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Job No.: CQCE/BBMP/KRIDL/W.No.12/2016-17 Date: 15.04.2016

TEST REPORT ON STABILITY OF MIX

Client	:	**Executive Engineer,** Dasarhalli Division, BBMP, Bangalore.
Agency	:	**Technical Manager (west),** KRIDL, Bangalore.
Name of the Work	:	Asphalting of road from WIMAC Junction to Abbigere in Shettyhalli Ward No.12, BBMP, Bangalore.
Reference	:	EE/DD/WO/443/2012-13 Dated:08.03.2013
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Semi Dense Bituminous Concrete
Date of Testing	:	15.04.2016

The results of the tests conducted on the Semi Dense bituminous concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.67	10.13	9 Kn (min)
2	Marshal flow, mm	2.82	3.41	2 – 4
3	Percent air voids in Mineral Aggregate	13.15	14.23	13 – 15
4	Voids in Compacted Mix	3.41	4.36	3 – 6
5	Percent Voids filled with Bitumen	70.26	71.42	65 - 75
6	Density, g/cc	2.26	2.27	--

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Ravi.N.K
AEN-12

AE-12

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Job No.: CQCE/BBMP/KRIDL/W.No.12/2016-17 15.01.2016

BITUMEN CONTENT AND GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AASHTO T 164 & AASHTO T 30

CLIENT	**Executive Engineer,** Dasarhalli Division, BBMP, Bangalore.
AGENCY	**Technical Manager (west),** KRIDL, Bangalore.
NAME OF THE WORK	Asphalting of road from WIMAC Junction to Abbigere in Shettyhalli Ward No.12, BBMP, Bangalore.
REFERENCE	EE/DD/WO/443/2012-13 Dated:08.03.2013
DATE OF TESTING	15.01.2016

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	473.5	474.5
3. Weight of Asphalt and Mineral matter Extracted,	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	26.5	25.50
7. Bitumen content in %	5.30	5.10
8. Average	**5.20**	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Trail 1				JOBMIX
mm	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	Gradation
13.2	0	0	0	100	100
9.5	36.21	7.65	7.65	92.35	90-100
4.75	253.6	53.56	61.21	38.79	35-51
2.36	43.21	9.13	70.33	29.67	24-39
1.18	34.69	7.33	77.66	22.34	15-30
0.3	49.21	10.39	88.05	11.95	9-19
0.075	35.1	7.41	95.46	4.54	3-8

SIEVE SIZE	Trail 2				JOBMIX
mm	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	Gradation
13.2	0	0	0	100	100
9.5	28.61	5.72	5.72	94.28	90-100
4.75	263.41	52.68	58.40	41.60	35-51
2.36	42.15	8.43	66.83	33.17	24-39
1.18	53.96	10.79	77.63	22.37	15-30
0.3	42.15	8.43	86.06	13.94	9-19
0.075	32.6	6.52	92.58	7.42	3-8

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